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The Influence of Interactive Web Platforms on the Development of Future Specialists' Communication Competences

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Abstract: - The article aims to find out the specific features of the use of interactive web platforms for developing components of communicative competence of future specialists in various fields. The study used testing, observation, and experimental procedures. The sample was from students majoring in Secondary Education, Philology, and Journalism. The study confirmed the hypothesis about the effectiveness of using web platforms to develop future specialists' communicative competence. The average indicators of communicative competence's cognitive and activity components prevail in the studied future specialists. At the same time, communication skills are not sufficiently developed. Significant positive changes have been recorded in the cognitive and activity components of communicative competence. The motivational component remained unchanged due to the formative impact – a decrease in the fear of rejection was found only in the group of future teachers. In general, the developed online program does not significantly depend on the specialty, as the developed exercises have already considered the specifics of a particular area of training. The obtained results can be used to optimize forming communicative competence in higher education. Thus, the conclusions about using web platforms to develop communicative knowledge and skills of future specialists are practically valuable. Further research could address prospects in expanding the range of specialties studied and clarifying the data obtained by comparing them with the results of the control groups.

Key Words: - communicative competence, interactive educational technologies, communicative skills, focus on perception, fear of rejection, web platforms.

1 Introduction

Interactive technologies in education have additional pedagogical possibilities compared to traditional forms of education, [1]. The experience of using these tools in higher education is precious, especially since the onset of the Covid-19 pandemic, when it became clear that beautiful theoretical constructs need to be tested in the context of specific pedagogical conditions and that the pandemic and total quarantine restrictions, the use of technology has become a powerful force that has enabled the preservation and functioning of the education system, [2]. The active use of interactive network platforms during the pandemic requires a change in the approach to interpreting the phenomenon of education in general, [3]. Digital, interactive tools determine the growing attractiveness of education for the younger generation, [4]. At the same time, there are still several problematic aspects related, in particular, to the overload of students, the disconnection of the use of interactive technologies from classical

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didactic principles, [5], and the negative impact of unreasonable game forms of work on academic performance, [6]. These considerations indicate the importance of research on using interactive technologies in education. Particular attention should be paid to using information technology in higher education institutions in the context of the Russian-Ukrainian war, [7].

In modern realities, communicative competence is one of the integral components of the training of a future specialist, [8]. The primary way of forming this aspect of professional training involves using methods and tools focused on acquiring language knowledge and communication skills, [9]. Studies show that using interactive technologies allows for optimizing communication between the subjects of the educational process, [10], and overcoming students' communication barriers, [11].

At the same time, a systematic study of the impact of information and communication technologies on forming the communicative sphere of specialists is insufficiently represented in pedagogical science. In this context, it is important to find out the differences in the process of communicative competence of future specialists in various fields under the influence of interactive technologies. The use of scientifically based methods of data collection and a formative experiment will allow establishing the possibilities of the influence of web platforms on the possibilities of professional communication. In this way, the specificity of interactive educational technologies for professional training under modern realities is clarified. The obtained results will make it possible to optimize the strategy and tactics of higher education, considering the specifics of a specific specialty.

The study aims to discover the specific features of the use of interactive web platforms for developing components of the communicative competence of future specialists in various fields.

Objectives of the study:

1) to analyze the factors of effective use of interactive web platforms in the training of future specialists;

2) to find out the formation of indicators of components of future specialists' communicative competence;

3) to compare the effectiveness of the impact of interactive web platforms on the development of communication competencies in students of different specialties.

2 Literature Review

The effectiveness of using interactive e-resources in higher education has been empirically proven many times. In particular, it is argued that the main factors of satisfaction with education in this context are the quality of visuals, the structure of video instructions, and the content of electronic textbooks, [12]. Essential conditions for a positive attitude towards interactive technologies are their ease of use and predicted usefulness, [13]. At the same time, it should be noted that these findings concerned the training of future programmers. The undoubted advantage of using interactive technologies is the ability to quickly create a variety of means of controlling the acquisition of knowledge - tests and interactive tasks, [14]. The study, [15], identifies the following strategic guidelines for optimizing the introduction of interactive technologies in the educational process: availability of technical support, methodological training of teachers in the use of ICT, economic feasibility, coordination of central and regional authorities, and educational institutions on the modernization of education.

The advantages of interactive technologies in modern education are undeniable. The scientists analyzed the positive impact of interactive platforms on the manifestation of leadership qualities of higher education students, [16], and the role of interactive technologies in developing students' creativity, [17]. Through interactive web platforms, student performance increases based on reduced anxiety in learning situations, [18]. In general, using interactive technologies can stimulate the dynamics of the educational process, especially through gamification, [19].

One of the difficulties of using information technology in the educational process is the high level of anxiety and stress among teachers when mastering new educational tools, [20]. This problem has become especially acute since the start of the pandemic. Studies conducted in pre-Covid times show the following aspects of education that negatively affect the implementation of interactive technologies: lack of computer skills, limited time for technological training of teachers, and technical support for the process, [21]. Teachers may have negative attitudes toward the role of technology in education, which reduces its effectiveness, [22]. Even now, the lack of adequate attention to teacher training in the use of interactive tools can hurt educational outcomes.

To achieve the aim and objectives of the study, it is important to clarify the content and features of the concept of "communicative competence", the formation of which is one of the main tasks of

higher education, [23]. Communicative competence is a systemic component of a personality that involves knowledge and experience of effective professional communication. The main competencies are the ability to understand the partner, perfect mastery of verbal and non-verbal communication, constructively resolving conflicts, empathy, and emotional self-regulation, [24]. The informative competence of future lawyers, which involves the general ability to work with information, includes the following components: cognitive and content (knowledge of professional communication), value and motivation (motives for professional communication), and operational and technological (communication skills), [25]. The communicative competence of a future public management and administration specialist consists of the following components: public speaking, effective communication, business negotiations, arguing one's position, dialogue, and conflict management, [25]. Despite the different approaches, we can identify common structural elements of the phenomenon under study.

Using modern technological resources to develop communication skills is advisable, [26]. The use of interactive web-based tools has demonstrated promising results in forming foreign language competence in the context of expanding vocabulary, developing listening skills, and increasing freedom of communication, [27]. The organization of the didactic content of the web platform increases the motivation to learn the language and allows you to practice speaking skills in the context of specific social situations, [28].

In conclusion, it can be noted that the theoretical analysis has identified the main aspects of the pedagogical use of interactive technologies and the phenomenon of communicative competence. However, no systematic studies combining these two aspects have been found.

3 Methods and Materials

The empirical study was conducted using a cross-sectional strategy that involved comparing the trends of several samples. The theoretical substantiation of the main problem and compliance with the key requirements for empirical research ensures the objectivity of the data. The following *stages of empirical research* were implemented:

3.1 Research Planning Stage

It was carried out from December 2022 to January 2023, which is the definition of the overall strategy and tactics of the study. The approximate duration of the research work was planned, the methods of collecting empirical material, the number of participants, technological support, and possible financial costs were determined, and the future research was analyzed from the point of view of moral and ethical standards. An important aspect of this stage was coordinating the theoretical analysis results with the empirical research plan. The following components of future specialists' communicative competence were identified: cognitive (a set of knowledge about professional communication), motivational (motivations for professional communication, namely, focus on other people), and activity (skills and abilities of communication aimed at solving professional problems). It should be noted that despite the theoretical model's universal nature, the components' specific content varies depending on the specialtyspecialty of the students under study. The study hypothesizes that the effectiveness of using web platforms for developing future specialists' communicative competence depends on the educational process's psychological and methodological justification and the student's characteristics contingent on a particular specialty.

3.2 Empirical Stage

It involved the collection of research data. It was carried out using a set of selected methodological tools. The primary diagnosis took place in early February 2023; the formative impact through web platforms was implemented in February - May 2023; the repeated diagnostics were conducted in June 2023.

3.3 Stage of Data Analysis

It was conducted in the summer of 2023, and allowed us to identify quantitative and qualitative changes to detect shifts in the structural components of the communicative competence of future specialists in different specialities. The methods of mathematical statistics were used.

3.4 Data Interpretation Stage

This stage was conducted in the autumn of 2023 and was aimed at establishing qualitative patterns of communicative competence formation in the context of using web platforms and creating theoretical generalizations.

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3.5 Methods

Testing and observation were used to determine the level of development of the components of future specialists' communicative competence.

To test the formation of the cognitive component, we used the tests for knowledge of professional communication, created based on theoretical analysis, taking into account the specifics of a particular specialty and consultations with experts. The test material reflects theoretical constructs and describes professional communication situations where the research participant has to choose the best option for behavior. The test had different content for different study groups.

To test the formation of the motivational component, we used the method of affiliation motivation, which diagnoses the personality's orientation towards interaction with other people. The methodology was used in similar studies.

The observation method was used to test the formation of the activity component of communicative competence. The developed programs for monitoring communicative skills and abilities were designed to consider the peculiarities of the specialty under study. The universal criteria for observation were the level of speech skills, verbal and non-verbal understanding, ability to conduct a dialogue, listening skills, and ability to conduct a professional discussion.

The implementation of the elements of the formative experiment was based on the use of the Microsoft Teams web platform. The educational content was selected according to the relevant educational programs of the studied specialties. The emphasis was on developing communicative competence in solving specific professional tasks. The psychological and didactic substantiation was based on the analysis of the methodological manual, which covers similar issues. Simulation methods of professional training were used to form communicative competence: game and non-game (analysis of problem situations). Online testing and video materials were also used on an informational and didactic basis. The duration of the formative impact was four months, which allowed for a systematic approach to the development of communicative competence. The students were divided into groups of 8-10 people to participate in the experiment. Specialists in the relevant field implemented the formative influence.

The data analysis was carried out based on calculating the percentage of levels of communicative competence and the Student's t-test. The procedure was carried out by comparing dependent samples. To justify using the Student's t-test, a check of the normality of the data distribution was carried out based on the calculation of the Kolmogorov-Smirnov test. Thus, the differences between the studied groups of students between the two data sets were established. Thus, the statistical significance of the difference between primary and secondary diagnostic data was established. The SPSS.22 software was used for data processing.

3.6 Sample

The sample was from students majoring in Secondary Education, Philology, and Journalism at Taras Shevchenko Luhansk National University. The study groups included students of bachelor's and master's degrees. The quantitative composition of the sample was distributed as follows: future teachers − 77 people; future journalists − 72 people; future translators − 68 students. The total number of participants in the study is 217. The samples were formed based on a stratification approach.

The representativeness of the results is possible due to the proper quantitative and substantive indicators of the samples.

The data was collected online. The methods used were digitized using specialised tools on a web-based platform.

The study complies with *deontological requirements*, as the developed scientific research algorithm does not affect the subjects' physical, psychological, and social well-being, as confirmed by independent experts' conclusions. All participants were familiarised in detail with the terms of the study and gave their consent.

4 Results

The results of the empirical data analysis are presented in the tables. Let us analyze the dynamics of each component of communicative competence.

Changes in students' knowledge of professional communication are presented in Table 1, Figure 1.

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Table 1. Dynamics of Changes in the Cognitive Component of Future Specialists' Communicative Competence under the Influence of Web Platforms Content

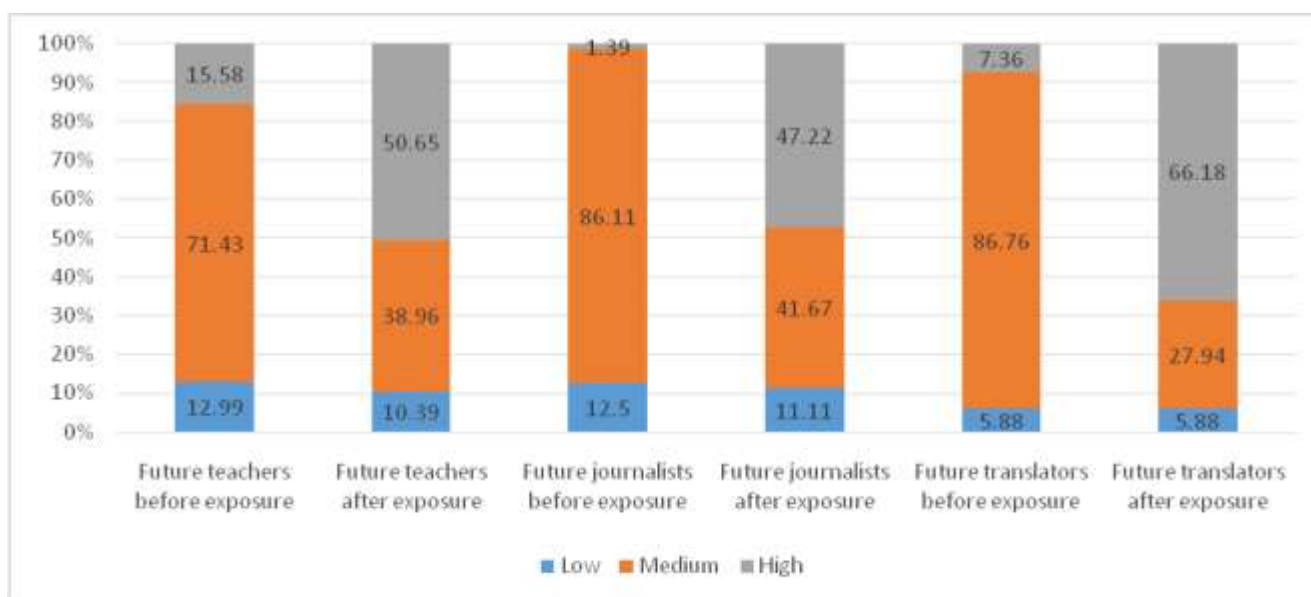| Sample | Levels of Formation | Number of subjects | | | |
| | | Before exposure | | After exposure | |
		%	Quantity	%	Quantity
Future teachers	Low	12,99	10	10,39	8
	Medium	71,43	55	38,96	30
	High	15,58	12	50,65	39
Future journalists	Low	12,5	9	11,11	8
	Medium	86,11	62	41,67	30
	High	1,39	1	47,22	34
Future translators	Low	5,88	4	5,88	4
	Medium	86,76	59	27,94	19
	High	7,36	5	66,18	45

Fig. 1: Indicators of the Cognitive Component of the Communicative Competence of Future Specialists at Different Stages of the Formative Experiment

Subjects with an average level of the cognitive component dominate each of the three samples. This indicator is in the range of 71 - 86 %. The sample of future teachers has the highest percentage of people with a high level of this component (15.58 %). The most significant percentage of students with low scores was found in the group of future teachers and journalists (approximately 12%). In all three groups, there are positive changes in the cognitive component due to an increase in the percentage of people with a high level and a decrease in the percentage of students with an average level. Thus, in the group of future teachers, after implementing the formative impact on web platforms, high levels of knowledge about communication increased by 35.07%. For future journalists, high scores increased by 45.83%, and for the sample of future translators, it increased by 58.82%.

Changes in the orientation towards social acceptance (one of the indicators of the motivational component of communicative competence) are shown in Table 2, Figure 2.

There is a significant predominance of average indicators (80-90%). The most pronounced percentage of students with a high level was found in the sample of future journalists (13.88 %). A minimal representation of students with a low desire for social acceptance characterizes the results. Interestingly, the use of web platforms had virtually no effect on improving the indicators of this motivational component - after the program's implementation, the diagnostic results remained almost unchanged. The recorded changes are within a few percent.

Changes in the fear of social rejection (the second indicator of the motivational component of communicative competence) are shown in Table 3, Figure 3.

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Table 2. Dynamics of Changes in the Orientation Towards Social Acceptance of Future Specialists under the Influence of Web Platform Content

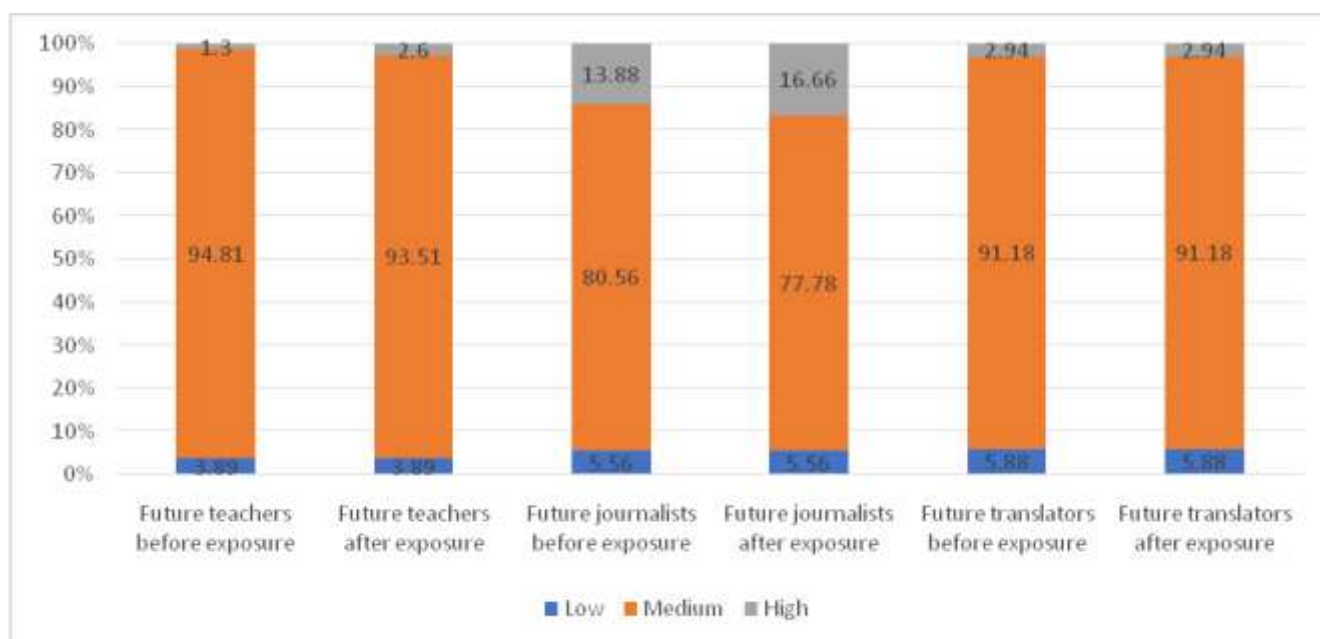| Sample	Levels of Formation	Number of subjects			
		Before exposure		After exposure	
		%	Quantity	%	Quantity
Future teachers	Low	3,89	3	3,89	3
	Medium	94,81	73	93,51	72
	High	1,3	1	2,6	2
Future journalists	Low	5,56	4	5,56	4
	Medium	80,56	58	77,78	56
	High	13,88	10	16,66	12
Future translators	Low	5,88	4	5,88	4
	Medium	91,18	62	91,18	62
	High	2,94	2	2,94	2

Fig. 2: Indicators of Focus on Social Acceptance as a Component of the Communicative Competence of Future Specialists at Various Stages of the Formative Experiment

Table 3. The Dynamics of Changes in the Fear of Social Rejection of Future Professionals under the Influence of Web Platform Content

Sample	Levels of Formation	Number of subjects			
		Before exposure		After exposure	
		%	Quantity	%	Quantity
Future teachers	Low	5,19	4	35,06	27
	Medium	74,03	57	54,55	42
	High	20,78	16	10,39	8
Future journalists	Low	6,94	5	6,94	5
	Medium	63,89	46	61,12	44
	High	29,17	21	31,94	23
Future translators	Low	5,88	4	5,88	4
	Medium	73,53	50	69,12	47
	High	20,59	14	25	17

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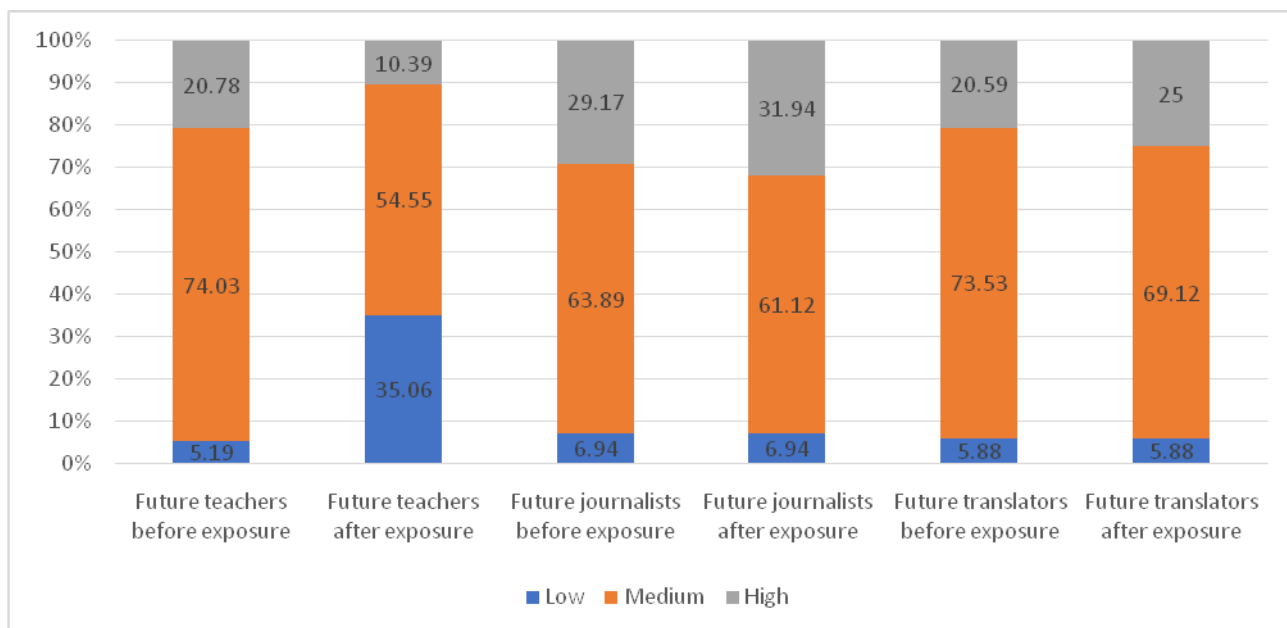Iryna Pavlenko

Fig. 3: Indicators of Focus on the Fear of Social Rejection as a Component of the Communicative Competence of Future Specialists at Different Stages of the Formative Experiment

Table 4. Dynamics of Changes in the Activity Component of Future Specialists' Communicative Competence under the Influence of Web Platforms Content

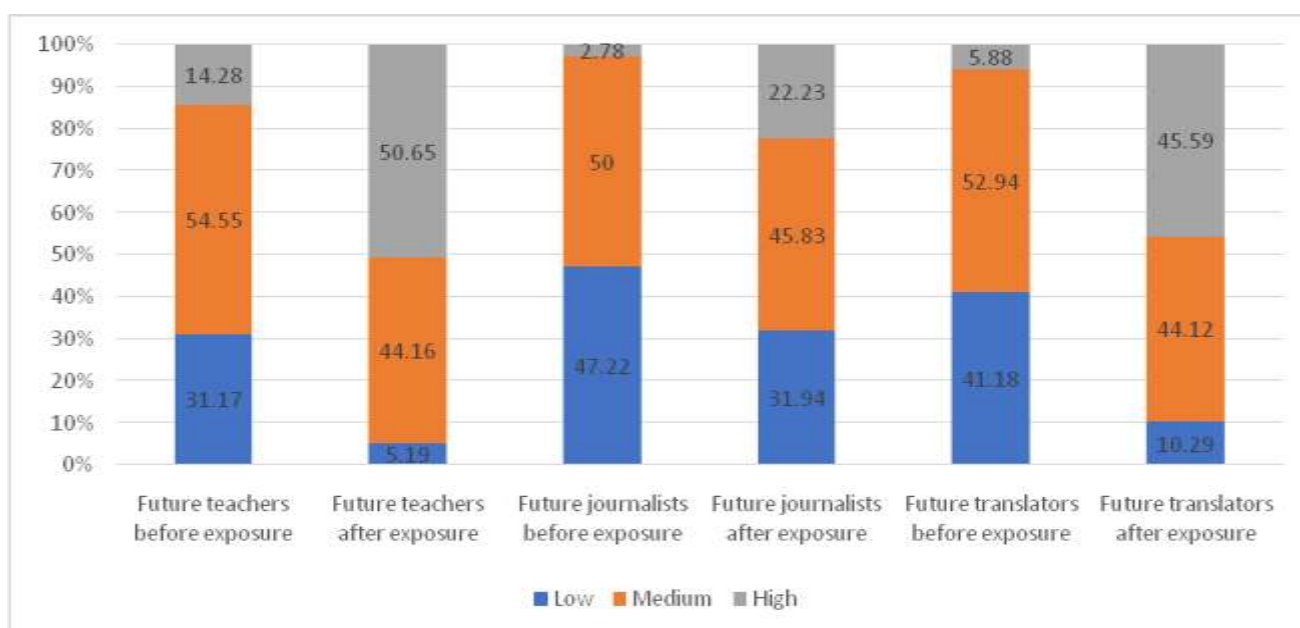| Sample	Levels of Formation	Number of subjects			
		Before exposure		After exposure	
		%	Quantity	%	Quantity
Future teachers	Low	31,17	24	5,19	4
	Medium	54,55	42	44,16	34
	High	14,28	11	50,65	39
Future journalists	Low	47,22	34	31,94	23
	Medium	50	36	45,83	33
	High	2,78	2	22,23	16
Future translators	Low	41,18	28	10,29	7
	Medium	52,94	36	44,12	30
	High	5,88	4	45,59	31

Fig. 4: Indicators of the Activity Component of Communicative Competence

The average values of the component are 63-73%. High values are observed in 20-30 % of respondents. In general, the trends of this component are similar in all three samples. The results differ slightly from the data of the initial diagnosis of the previous parameter. It can be said that the fear of social rejection prevails over the desire to interact in the communicative motivation of the students studied. Positive changes after working with web platforms are observed only in the sample of future teachers (high scores decreased by 10.39%, and low scores increased by 29.87%). No significant changes in the component were found in the samples of future journalists and translators.

Changes in students' communication skills development are presented in Table 4, Figure 4.

The results of the initial diagnostics differ significantly from the trends in the previous parameters, namely, the severity of the low formation level. Low indicators of the activity component of communicative competence are recorded from 31% to 47%. The average values of professional communication skills were diagnosed in about 50 % of the representatives of all three samples. The number of students with a high level of this component is minimal (most of all in the sample of future teachers). The formative impact of web-based platforms is practical for all groups of students. The high scores of the activity component for future teachers increased by 36.37%, for future journalists by 19.45%, and for future translators by 39.71%. In each sample, the lowest values of the activity component of communicative competence decreased. The results show that the program was the least effective for future journalism professionals.

Using the Student's t-test allows us to determine the significance of differences in indicators of communicative competence under the influence of the content of interactive web platforms. The preliminary conclusions are confirmed by statistical analysis results (Table 5).

Table 5. Student's T-Test Coefficients of the Components of Future Specialists' Communicative Competence under the Influence of Web Platforms

Components of communication competence	Student's t-test		
	Future teachers	Future journalists	Future translators
Cognitive	3,735**	3,419**	3,156**
Focus on acceptance	1,637	1,429	1,163
Fear of rejection	3,497**	1,541	1,713
Activity-based	2,967**	2,232*	3,691**

We can see that the coefficients of significance at the level of $p = 0.01$ for the cognitive component of communicative competence were found (t=3.735; t=3.419; t=3.156). The results indicate the significant effectiveness of the experimental program using web platforms to form knowledge about professional communication. No significant criterion coefficients were found for the parameter of acceptance orientation. This means that the desire for constructive social interaction did not change significantly after the experiment. According to the component "fear of rejection", considerable changes are recorded only in the sample of future teachers (t=3,497). Such data indicate increased social anxiety among future specialists in the professional sphere. The activity component has changed significantly in the three samples studied (for future teachers and translators at $p = 0.01$ and future journalists at $p = 0.05$) – t=2.967; t=2.232; t=3.691. This shows the importance of interactive interaction on web platforms for improving communication skills.

5 Discussion

The results obtained point to the confirmation of the hypothesis. The exercises used to develop communicative competence in the context of their use on web platforms have demonstrated their effectiveness, [29]. The productivity of online content implementation is heterogeneous - significant positive results are recorded for the cognitive and activity components of communicative competence, while the motivational component remains without substantial changes. At the same time, a positive trend in future teachers has been identified, manifested in a decrease in fear of social rejection and, in our opinion, is related to the specifics of professional activity, namely communication with children. It can be said that the

predominant form of social motivation among future specialists in the studied specialties is the fear of social isolation rather than the desire for acceptance, [29]. The developed online program generally does not significantly depend on the specialty. This is because the developed exercises have already considered the specifics of a particular training area. It can also be said that using interactive web platforms to develop communication competence has a more significant impact on the instrumental component. In contrast, the individual's deep psychological communication mechanisms change less.

We can confirm the positive impact of interactive web platforms on student performance, [18]. The formative effect of interactive technologies on acquiring language knowledge and communication skills has also been proven, [9]. In particular, using web-based platforms to develop future translators' foreign language communicative competence is practical, [27]. At the same time, interactive technologies have no significant positive impact on students' motivation, [28], which is related to the socio-cultural specifics of the educational process. Students' communication on web platforms was carried out relatively freely, which indicates the leveling of communication barriers in educational interaction, [11].

The developed program was successful precisely because it bridged the distance between interactive educational technologies and didactic justification, [5]. An essential condition for the work's success is the prior training of teachers in working with interactive web platforms, which reduces the level of negative emotional experiences, [20]. We also agree with the statement about the growing attractiveness of education for the younger generation in using interactive tools, which is confirmed by the results of observations of students during the study, [4]. It is advisable to actively use game methods on web platforms in the context of the educational process, [19]. An important external factor that could have influenced the study's results is the war and related experiences, which determine the actions and state of the subjects of the educational process in the Internet space, [7], [30].

The study has limitations related to the absence of control groups and the relatively small size of the research samples.

6 Conclusions

The study confirms the hypothesis about the effectiveness of using web platforms to develop future specialists' communicative competence. The conditions for the effective development of students' communicative competence using Internet technologies are the training of teachers in the use of technologies, technical accessibility, consideration of the age characteristics of students, consideration of the specifics of the pedagogical process of a particular specialty, didactic substantiation of the web platform content. The average indicators of communicative competence's cognitive and activity components prevail in the studied future specialists. At the same time, communication skills are not sufficiently developed. Significant positive changes are recorded in communicative competence's cognitive and activity components. The motivational component remained unchanged due to the implementation of the formative impact - a decrease in the fear of rejection was found only in the group of future teachers. In general, the developed online programprogram does not significantly depend on the specialty, as the developed exercises have already considered the specifics of a particular area of training. The use of interactive web platforms has a more significant impact on the instrumental component of professional communication, while the motivational and value mechanisms change only slightly. In the described study, we offer a scientific approach involving differentiation and comparing the results obtained by training areas. Because of this, the formation of communicative competence in the web space will consider the specifics of professional training in each specialty. In addition, a detailed analysis of the dynamics of the structure of communicative competence will allow the creation of appropriate psychological conditions for implementing the tasks. We believe that the obtained results are more detailed in theoretical and practical aspects, compared to similar scientific investigations. The results can be used to optimize the process of forming communicative competence in higher education. Thus, the conclusions about using web platforms to develop communication knowledge and skills of future specialists are practically valuable. These data can be the core of changing educational programs regarding methodology and content. In addition, the results can become the basis for higher school teachers' training and professional development in terms of interactive technologies. Also, the obtained empirical indicators and theoretical generalizations are the basis of the educational process's differentiation depending on the specialty's direction and the information technologies used. We see further research prospects in expanding the range of studied specialties and clarifying the data obtained

by comparing them with the results of control groups.

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